

U.S. Application Serial No.: 10/768,390
Amendment dated December 26, 2006
In response to Office Action Dated July 24, 2006

REMARKS

Claims 1-32 are in this application.

Claims 21 and 23-26 have been withdrawn from consideration for being directed to non-elected invention.

Claims 12, 13, and 32 are canceled without prejudice or disclaimer.

Claim 1 and 22 were amended to overcome the 112 rejection.

Claim 11 was amended by incorporating the subject matter of canceled claims 13 and 14 into claim 11.

Claims 14 was amended to depend from claim 11.

New claims 33 to 36 are added.

Claims 1-11, 14-20, 22, 27-31 and 33 to 36 are currently pending in this application.

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Claims 6-8 and 20 were objected to as being dependent from a rejected base claim but were indicated that they would be allowable if written in independent form incorporating all the limitations of the intervening claims.

New claims 33 to 36 are equivalent to the claims 6-8 and 20 written in independent form incorporating all the limitations of base claim and the intervening claims.

Accordingly, the objections to claims 6-8 and 20 should be withdrawn and claims 6-8 and 20 should be allowed.

Claims 1-5, 9-19 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,156,102 to Conrad et al., herein after Conrad et al.

Claim 32 is canceled. Therefore, the rejection of claim 32 is moot.

With respect to the 102 rejections of claims 1 to 5, and 9 and 10, Conrad et al. does not teach or disclose element (d) of the invention as claimed in claim 1. Thus, Conrad et al. does not teach or disclose to use vacuum pumps for removing any gases from the mixture formed after the condensation step. Further, Conrad et al. does not teach or disclose the step of removing such gases to maintain the pressure.

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With respect to the 102 rejections of claims 11 to 15, claim 11 was amended by incorporating the subject matter of claim 13 into claim 11. Accordingly, Conrad et al. does not teach or disclose the present invention as claimed in claim 11 because Conrad et al. does not teach transferring heat energy (produced from a condensation step) to a heat pipe.

With respect to the 102 rejection of claims 16 to 19, Conrad et al. does not teach or disclose the method of the present invention as claimed because Conrad et al. fails to teach or disclose the manner in which the collected water is transferred from the vacuum chamber 114 to the flow collector 124. Further, Conrad et al. fails to teach or disclose the step of equalizing the pressure between the chamber 114 and 124 prior to effecting the flow from chamber 114 to collector 124.

Thus, claims 1-5, 9-11, and 14-19 are novel and, as such, claims 1-5, 9-11, and 14-19 are allowably.

Accordingly, the rejection of claims 1-5, 9-19 and 32 under 35 U.S.C. 102(b) as being anticipated by Conrad et al. should be withdrawn and claims 1-5, 9-11, and 14-19 should be allowed.

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Claim 31 is rejected under 35 U.S.C. 103(a) as being obvious over Conrad et al.

Applicants respectfully submit that all of the limitations of claim 31, including the step of "contacting air having water vapour with a hygroscopic liquid mixture consisting of a supersaturated aqueous solution of lithium chloride to produce a water rich hygroscopic liquid mixture," are not disclosed by Conrad et al. as clearly shown by the arguments presented herein above to remove Conrad et al. as a proper 102(b) reference.

Further, the criticality of using a supersaturated solution of LiCl in water is clearly shown on pages 5-6 of the specification, particularly the paragraphs which state:

"In terms of the extent to which the hygroscopic liquid mixture is able to absorb water from atmospheric air, it has been recognized that the hygroscopic liquid mixture can be a supersaturated aqueous solution of LiCl. In this respect, the hygroscopic liquid mixture can be an aqueous lithium chloride solution comprising an effective amount of LiCl to render the solution to be supersaturated (greater concentration of dissolved LiCl in water than that predicted under equilibrium conditions at a given temperature and pressure). The hygroscopic liquid mixture leaving the desorption vessel 46 can be a supersaturated solution of LiCl in water. The hygroscopic liquid mixture becomes such a supersaturated solution as a result of water being vaporized from the water rich hygroscopic liquid mixture. As water is vapourized in the desorption vessel

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46, the concentration of the LiCl in the liquid mixture increases. Eventually, the concentration increases beyond the known equilibrium saturation point. So long as the mixture is relatively clean, the LiCl will not precipitate out as the LiCl concentration moves beyond the equilibrium saturation point. For example, the absorption process can operate with an hygroscopic liquid mixture consisting of an aqueous solution having 40 wt% LiCl based on the total weight of the solution, at a temperature less than 0°C and at atmospheric pressure. Such an aqueous solution is supersaturated at these temperature and pressure conditions, as such solution has a higher concentration of LiCl than would normally be obtained (ie. predicted by equilibrium data) in a saturated solution of LiCl in water (ie. 40 wt% LiCl dissolved in water at these temperature and pressure conditions is more than would normally be possible). It has been observed that the concentration of LiCl in an aqueous solution functioning as the hygroscopic liquid mixture can exceed its equilibrium (saturation) concentration in aqueous solution (at a given temperature and pressure) by up to 7%. By using a supersaturated solution as the hygroscopic liquid mixture, additional water can be absorbed from the atmospheric air flow at lower temperatures by the same volume of hygroscopic liquid mixture within the absorber.

Thus, clearly, the step of contacting air having water vapour with a hygroscopic liquid mixture containing a supersaturated aqueous solution of lithium chloride to produce a water rich hygroscopic liquid mixture is an integral part of the instant process and, as such, the use of a hygroscopic liquid mixture containing a supersaturated aqueous solution of lithium chloride is critical to the process defined by claim 31.

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Accordingly, the rejection of claim 31 under 35 U.S.C. 103(a) as being obvious over Conrad et al. should be withdrawn and claim 31 should be allowed.

Applicants gratefully acknowledge the allowance of claims 22 and 27-30 and the allowability of claims 6-8 and 20.

In view of the foregoing, claims 1-11, 14-20, 22, 27-31 and 33 to 36 are all allowable. Accordingly, Applicants respectfully request reconsideration and allowance of all pending claims.

Respectfully submitted,

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